

ABSTRACT OF THE DISCLOSURE

Human and mouse TREK-1 potassium transport proteins are disclosed as well a method for using potassium transport proteins for identifying substances having anesthetic properties, such as producing a safe, reversible state of unconsciousness with concurrent amnesia and analgesia in a mammal upon inhalation, in a method comprising (a) contacting the test substance with a mammalian potassium transport protein, wherein said potassium transport protein exhibits outward-going potassium rectification; and (b) determining the potassium transport activity of the potassium transport protein, wherein an activation of potassium transport is indicative of the test substance having anesthetic properties.